

WEST

L3: Entry 4 of 7

File: USPT

Jan 28, 1997

US-PAT-NO: 5596994

DOCUMENT-IDENTIFIER: US 5596994 A

TITLE: Automated and interactive behavioral and medical guidance system

DATE-ISSUED: January 28, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bro; William L.	Los Angeles	CA	90045	

US-CL-CURRENT: 600/545; 128/904, 128/905, 128/925

## ABSTRACT:

An automated and interactive positive motivation system (10) that allows a physician, counselor or trainer to produce and send a series of motivational messages and/or questions to a client (50) to change or reinforce a specific behavioral problem. The system (10) consists of a client database (12) and a client program (14) that includes for each client unique motivational messages and/or questions based on the transtheoretical model of change comprising the six stages of behavioral change (100) and the 14 processes of change (114), as interwinding, interacting variables in the modification of health and mental health behaviors of the client (50). The client program (14) utilizes the associated 14 processes of change (114) to move the client (50) through one of the six stages of behavioral change (100) when appropriate by using a plurality of transmission and receiving means. The database and program are operated by a computer (16) that at preselected time periods sends the messages and/or questions to the client (50) through use of a variety of transmission means and furthermore selects a platform of behavioral issues that is to be addressed based on a given behavioral stage (100) at a given time of day.

48 Claims, 16 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 8



US005596994A

**United States Patent** [19]  
Bro

[11] **Patent Number:** 5,596,994  
[45] **Date of Patent:** Jan. 28, 1997

[54] **AUTOMATED AND INTERACTIVE BEHAVIORAL AND MEDICAL GUIDANCE SYSTEM**

[76] **Inventor:** William L. Bro, 8939 S. Sepulveda #530, Los Angeles, Calif. 90045

[21] **Appl. No.:** 237,261

[22] **Filed:** May 2, 1994

**Related U.S. Application Data**

[63] Continuation of Ser. No. 112,955, Aug. 30, 1993, Pat. No. 5,377,258.

[51] **Int. Cl.<sup>6</sup>** ..... A61B 5/04

[52] **U.S. Cl.** ..... 128/732; 128/904; 128/905

[58] **Field of Search** ..... 128/731-32, 903, 128/904, 905, 897-98; 364/413.01, 413.02, 41.03

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

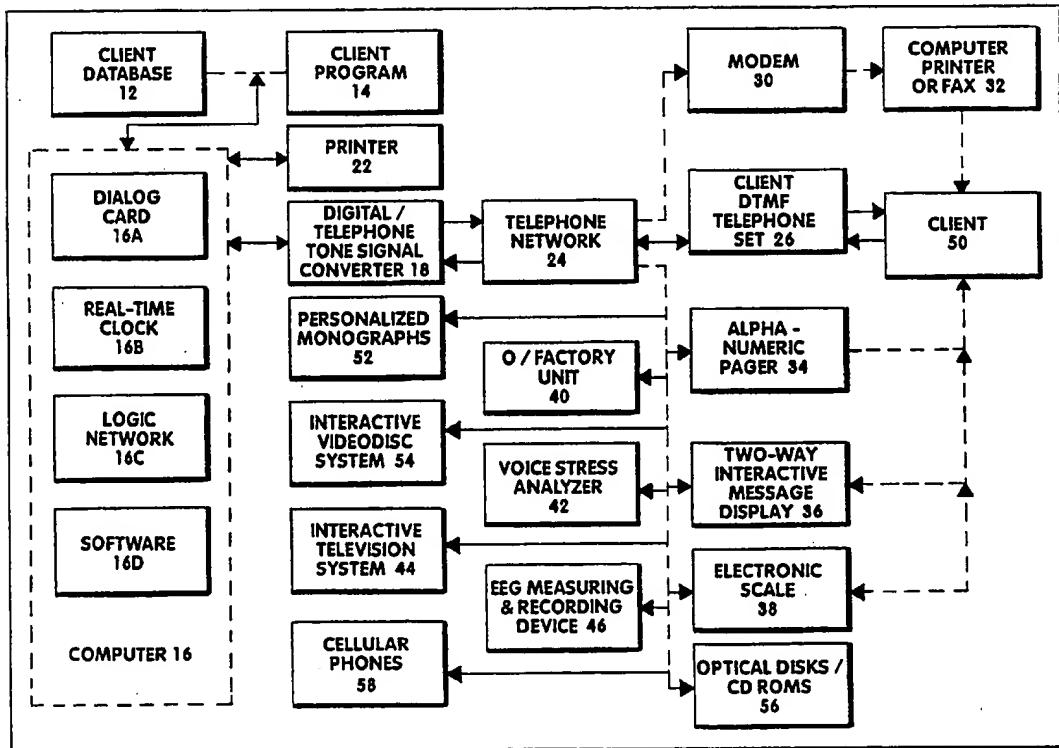
4,912,552	3/1990	Allison, II et al.	379/92
4,933,873	6/1990	Kaufman et al.	364/413.02
5,036,462	7/1991	Kaufman et al.	364/413.01
5,038,800	8/1991	Oba	128/904
5,126,957	6/1992	Kaufman et al.	364/413.02
5,142,484	8/1992	Kaufman et al.	364/413.02

*Primary Examiner—Angela D. Sykes  
Assistant Examiner—John P. Lacyk  
Attorney, Agent, or Firm—Cislo & Thomas*

[57] **ABSTRACT**

An automated and interactive positive motivation system (10) that allows a physician, counselor or trainer to produce and send a series of motivational messages and/or questions to a client (50) to change or reinforce a specific behavioral problem. The system (10) consists of a client database (12) and a client program (14) that includes for each client unique motivational messages and/or questions based on the transtheoretical model of change comprising the six stages of behavioral change (100) and the 14 processes of change (114), as interwinding, interacting variables in the modification of health and mental health behaviors of the client (50). The client program (14) utilizes the associated 14 processes of change (114) to move the client (50) through one of the six stages of behavioral change (100) when appropriate by using a plurality of transmission and receiving means. The database and program are operated by a computer (16) that at preselected time periods sends the messages and/or questions to the client (50) through use of a variety of transmission means and furthermore selects a platform of behavioral issues that is to be addressed based on a given behavioral stage (100) at a given time of day.

48 Claims, 8 Drawing Sheets



WEST

L2: Entry 4 of 15

File: USPT

Apr 5, 1994

US-PAT-NO: 5301105

DOCUMENT-IDENTIFIER: US 5301105 A

TITLE: All care health management system

DATE-ISSUED: April 5, 1994

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cummings, Jr.; Desmond D.	Apopka	FL	32715	

US-CL-CURRENT: 705/2; 705/4, 705/40

## ABSTRACT:

A fully integrated and comprehensive health care system that includes the integrated interconnection and interaction of the patient, health care provider, bank or other financial institution, insurance company, utilization reviewer and employer so as to include within a single system each of the essential participants to provide patients with complete and comprehensive pre-treatment, treatment and post-treatment health care and predetermined financial support therefor.

102 Claims, 11 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9

WEST

L10: Entry 6 of 7

File: USPT

Feb 14, 1995

US-PAT-NO: 5390238

DOCUMENT-IDENTIFIER: US 5390238 A

TITLE: Health support system

DATE-ISSUED: February 14, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kirk; Dan M.	Scottsdale	AZ		
Gehring; Norman C.	Scottsdale	AZ		
Butorac; George J.	Mesa	AZ		

US-CL-CURRENT: 379/106.02; 128/904, 379/38, 379/52

## ABSTRACT:

A home health and communications support system and method which includes at least one health support unit for monitoring and supporting a patient, at least one monitoring terminal, and a network server coupled between the at least one health support unit and the at least one monitoring terminal for exchanging information between the at least one health support unit and the at least one monitoring terminal. The health support unit comprises a medication controller, communications module for interacting with the patient, central data processor, and external communications interface. The central data processor stores and manipulates patient data generated by the medication controller and by the communications module for patient interaction. The external communications interface allows access to patient data and accepts external data from an external source.

5 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

WEST

L10: Entry 5 of 7

File: USPT

Apr 25, 1995

US-PAT-NO: 5410471

DOCUMENT-IDENTIFIER: US 5410471 A

TITLE: Networked health care and monitoring system

DATE-ISSUED: April 25, 1995

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Alyfuku; Kiyoshi	Kanagawa			JP
Hiruta; Yoshiki	Kanagawa			JP

US-CL-CURRENT: 600/300; 4/314, 4/420, 4/661

## ABSTRACT:

A networked health care and monitoring system (10) capable of providing an updated reliable vital information on the health condition of individuals and adapted to support home health care and maintenance. The system includes testing and measuring instruments (39; 43; 46; 49; 56) associated with certain household appliances such as a toilet system (12) and adapted to monitor the vital information passively in response to the use thereof in connection with routine living activities of the individuals. The system may further include control devices (39; 46; 49; 56) associated with certain household appliances, such as an ergometer (15), having health care and maintenance functions and adapted to control the appliances based on the vital information monitored by the testing and measuring instruments in the system. In one embodiment wherein the system is arranged in the centralized network configuration, the testing and measuring instruments and the control devices are connected via a local area network with a data controller (20) wherein all the vital information obtained in the system is stored. Instruments and devices (39; 43; 46; 49; 56) are permitted to access the controller through the network to retrieve necessary vital information therefrom. In another embodiment arranged in the distributed network configuration, the vital information obtained by respective measuring instruments is stored therein and is furnished upon request to the other appliances.

45 Claims, 60 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 54

WEST

 Generate Collection

L4: Entry 43 of 43

File: USPT

Jul 19, 1994

DOCUMENT-IDENTIFIER: US 5331549 A

TITLE: Medical monitor system

Detailed Description Text (4):

The Dynamic Data Exchange (DDE) driver is a program incorporated in the CPU 17 that allows communication with other devices and in particular provides a data distribution function in addition to support for the peripheral devices. The DDE driver program sends local digitized patient data to the monitoring program in the CPU 17 of the central server and to local work stations 24 and remote work stations. The DDE driver also provides ability to send commands from the CPU 17 to the various monitors 12. The DDE only communicates changes in data, thereby avoiding redundant transmissions.



US006368273B1

(12) **United States Patent**  
Brown

(10) **Patent No.:** US 6,368,273 B1  
(45) **Date of Patent:** \*Apr. 9, 2002

(54) **NETWORKED SYSTEM FOR INTERACTIVE COMMUNICATION AND REMOTE MONITORING OF INDIVIDUALS**

(75) Inventor: Stephen J. Brown, Woodside, CA (US)

(73) Assignee: **Health Hero Network, Inc.**, Mountain View, CA (US)

(\*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/300,856

(22) Filed: Apr. 28, 1999

**Related U.S. Application Data**

(60) Division of application No. 08/946,341, filed on Oct. 7, 1997, now Pat. No. 5,997,476, which is a continuation-in-part of application No. 08/847,009, filed on Apr. 30, 1997, now Pat. No. 5,897,493.  
(60) Provisional application No. 60/041,746, filed on May 28, 1997, and provisional application No. 60/041,751, filed on Mar. 28, 1997.

(51) **Int. Cl.** <sup>7</sup> A61B 5/00

(52) **U.S. Cl.** 600/300; 705/3; 600/301;

128/904

(58) **Field of Search** 600/300-301, 600/529-538, 500-509, 481-486; 128/897-898, 904, 905, 920-925, 903

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,390,238 A 2/1995 Kirk et al.  
5,434,611 A 7/1995 Tamura  
5,441,047 A 8/1995 David et al.

5,596,994 A \* 1/1997 Bro ..... 128/905  
5,868,669 A \* 2/1999 Iliff ..... 600/300  
6,001,065 A \* 12/1999 DeVito ..... 600/544  
6,050,940 A \* 4/2000 Braun et al. ..... 128/920

**FOREIGN PATENT DOCUMENTS**

EP	0251520	1/1988
EP	0320749	6/1989
WO	9520199	7/1995
WO	9708605	3/1997

**OTHER PUBLICATIONS**

Reis, H, *Telemedicine: transmitting Expertise to the point of care*, Toward an Electronic Patient Record '97, Nashville, TN, Apr. 27-May 3, 1997, pp. 248-256, v. 3.

\* cited by examiner

*Primary Examiner*—John P. Lacyk

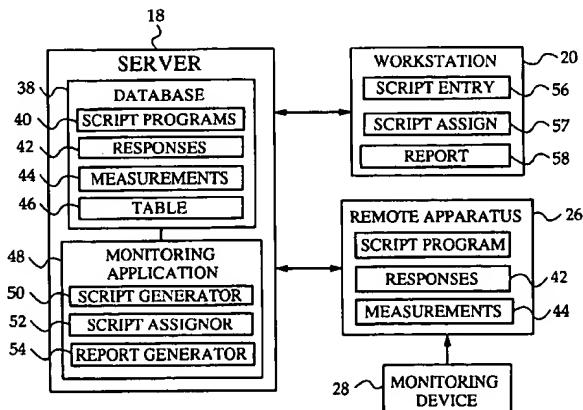
*Assistant Examiner*—Michael Astorino

(74) **Attorney, Agent, or Firm**—Black Lowe & Graham, PLLC

(57) **ABSTRACT**

The invention presents a networked system for communicating information to an individual and for remotely monitoring the individual. The system includes a server and a remote interface for entering in the server a set of queries to be answered by the individual. The server is preferably a web server and the remote interface is preferably a personal computer or remote terminal connected to the server via the Internet. The system also includes a remotely programmable apparatus connected to the server via a communication network, preferably the Internet. The apparatus interacts with the individual in accordance with a script program received from the server. The server includes a script generator for generating the script program from the set of queries entered through the remote interface. The script program is received and executed by the apparatus to communicate the queries to the individual, to receive responses to the queries, and to transmit the responses from the apparatus to the server.

**10 Claims, 15 Drawing Sheets**





US005899855A

**United States Patent** [19]  
Brown

[11] **Patent Number:** **5,899,855**  
[45] **Date of Patent:** \* **May 4, 1999**

[54] **MODULAR MICROPROCESSOR-BASED  
HEALTH MONITORING SYSTEM**

[75] Inventor: Stephen James Brown, Palo Alto, Calif.

[73] Assignee: **Health Hero Network, Inc.**, Mountain View, Calif.

[\*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: **08/481,925**

[22] Filed: **Jun. 7, 1995**

**Related U.S. Application Data**

[63] Continuation-in-part of application No. 07/977,323, Nov. 17, 1992, Pat. No. 5,307,263.

[51] Int. Cl.<sup>6</sup> **G06F 15/00**

[52] U.S. Cl. **600/301; 128/904; 128/920;  
600/316; 600/368**

[58] **Field of Search** **705/2, 3; 600/301,  
600/319, 316, 347, 368, 509; 128/902,  
904, 920, 923**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

4,803,625 2/1989 Fu et al. .... 364/413.03

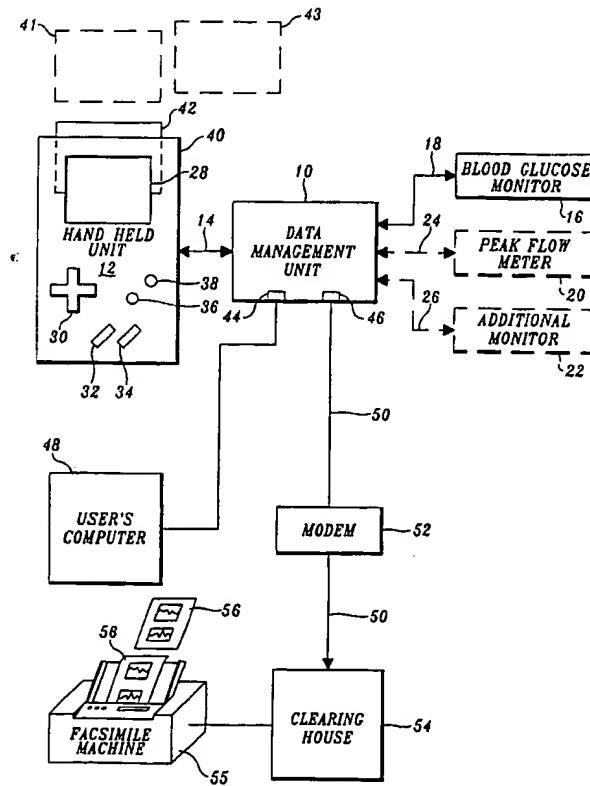
5,019,974	5/1991	Beckers .....	364/413.02
5,068,536	11/1991	Rosenthal .....	250/341
5,077,476	12/1991	Rosenthal .....	250/341
5,134,391	7/1992	Okada .....	340/799

*Primary Examiner—Stephen R. Tkacs  
Attorney, Agent, or Firm—Christensen O'Connor Johnson & Kindness PLLC*

[57] **ABSTRACT**

A modular self-care health monitoring system employs a compact microprocessor-based unit such as a video game system of the type that includes switches for controlling device operation and a program cartridge. In accordance with the invention, the program cartridge adapts the microprocessor-based unit for operation with a glucose monitor (or another type of health monitor). The microprocessor-based unit processes data supplied by the glucose monitor to supply signals for displaying relevant information on a display unit that may be included in the microprocessor-based unit or may be a separate unit such as a television or video display monitor. The system provides for transmission of signals to a remote clearinghouse or a healthcare facility via telephone lines or other transmission media. The clearinghouse includes signal processing capability for transmission of reports to a remotely located healthcare professional via facsimile transmission.

**53 Claims, 6 Drawing Sheets**





US005897493A

**United States Patent** [19]  
**Brown**

[11] **Patent Number:** **5,897,493**  
[45] **Date of Patent:** **Apr. 27, 1999**

[54] **MONITORING SYSTEM FOR REMOTELY  
QUERYING INDIVIDUALS**

[75] Inventor: Stephen J. Brown, Mountain View,  
Calif.

[73] Assignee: Health Hero Network, Inc., Mountain  
View, Calif.

[21] Appl. No.: 08/847,009

[22] Filed: Apr. 30, 1997

**Related U.S. Application Data**

[60] Provisional application No. 60/041,751, Mar. 28, 1997, and  
provisional application No. 60/041,746, Mar. 28, 1997.

[51] Int. Cl.<sup>6</sup> ..... A61B 5/02; G06F 15/00

[52] U.S. Cl. ..... 600/300

[58] Field of Search ..... 600/300, 301;  
128/898, 920-925

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

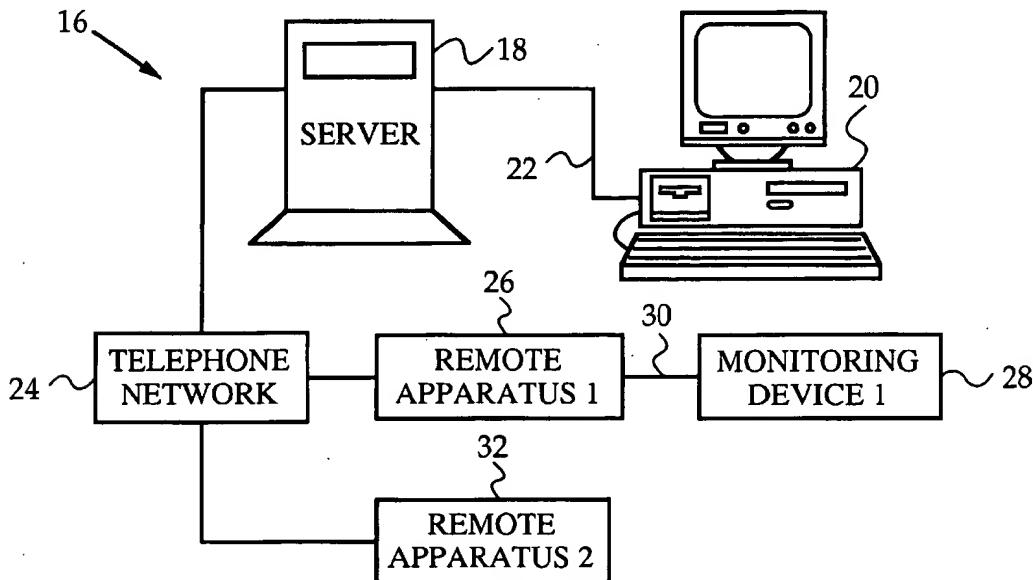
4,933,876 6/1990 Kaufman et al. .... 600/300  
5,262,943 11/1993 Thibado et al. .... 600/300  
5,441,047 8/1995 David et al. .... 128/904 X  
5,642,731 7/1997 Kehr .... 600/300

*Primary Examiner—Samuel Gilbert  
Attorney, Agent, or Firm—Lumen Intellectual Property  
Services*

[57] **ABSTRACT**

A monitoring system for remotely querying an individual includes a central computer system and at least one remote apparatus. The central computer system includes a server and a workstation networked to the server for entering a set of queries to be answered by the individual. The server includes a script generator for generating a script program to be executed by the apparatus. The script program includes display commands to display the queries, input commands to receive responses to the queries, and a transmit command to transmit the responses from the apparatus to the central computer system. The server also includes a database for storing the script program and the responses to the queries. The apparatus includes a modem for receiving the script program from the server and for transmitting the responses to the server. The apparatus also includes a display for displaying the queries and input buttons for entering the responses to the queries. A processor is connected to the modem, the display, and the input buttons. The processor executes the script program to display the queries, receive the responses, and transmit the responses to the central computer system.

**19 Claims, 12 Drawing Sheets**





US005997476A

**United States Patent** [19]

Brown

[11] **Patent Number:** **5,997,476**[45] **Date of Patent:** **Dec. 7, 1999**

[54] **NETWORKED SYSTEM FOR INTERACTIVE COMMUNICATION AND REMOTE MONITORING OF INDIVIDUALS**

5,544,649 8/1996 David et al. .... 600/301  
5,619,991 4/1997 Sloane .... 600/300

**FOREIGN PATENT DOCUMENTS**

0251520 1/1988 European Pat. Off. .... 15/42  
0320749 6/1989 European Pat. Off. .... 15/42  
9520199 7/1995 WIPO .  
9708605 3/1997 WIPO .

[75] Inventor: **Stephen J. Brown**, Mountain View, Calif.

*Primary Examiner*—Cary O'Connor

*Assistant Examiner*—Michael Astorino

*Attorney, Agent, or Firm*—Lumen Intellectual Property Services

[73] Assignee: **Health Hero Network, Inc.**, Mountain View, Calif.

[21] Appl. No.: **08/946,341**

**ABSTRACT**

[22] Filed: **Oct. 7, 1997**

**Related U.S. Application Data**

[63] Continuation of application No. 08/847,009, Apr. 30, 1997, Pat. No. 5,897,493

[60] Provisional application No. 60/041,746, Mar. 28, 1997, and provisional application No. 60/041,751, Mar. 28, 1997.

[51] **Int. Cl.<sup>5</sup>** .... **A61N 5/00**

[52] **U.S. Cl.** .... **600/300; 600/301; 128/920; 705/2; 705/3**

[58] **Field of Search** .... **600/300, 301; 379/93; 705/2, 3; 128/904, 905, 920-925, 897-898**

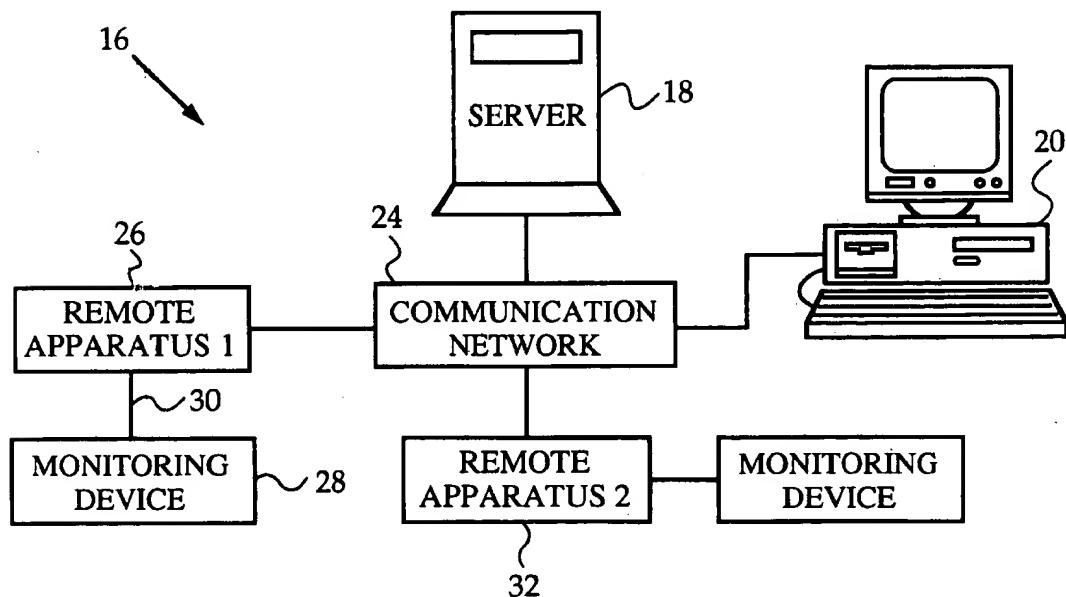
[56] **References Cited**

**U.S. PATENT DOCUMENTS**

5,299,121 3/1994 Brill et al. .... 600/301  
5,390,238 2/1995 Kirk et al. .... 379/93  
5,410,471 4/1995 Alyfuku et al. .... 600/300  
5,434,611 7/1995 Tamura .... 348/8  
5,441,047 8/1995 David et al. .... 128/670

The invention presents a networked system for communicating information to an individual and for remotely monitoring the individual. The system includes a server and a remote interface for entering in the server a set of queries to be answered by the individual. The server is preferably a web server and the remote interface is preferably a personal computer or remote terminal connected to the server via the Internet. The system also includes a remotely programmable apparatus connected to the server via a communication network, preferably the Internet. The apparatus interacts with the individual in accordance with a script program received from the server. The server includes a script generator for generating the script program from the set of queries entered through the remote interface. The script program is received and executed by the apparatus to communicate the queries to the individual, to receive responses to the queries, and to transmit the responses from the apparatus to the server.

**50 Claims, 15 Drawing Sheets**





US006402691B1

(12) **United States Patent**  
Peddicord et al.

(10) **Patent No.:** US 6,402,691 B1  
(45) **Date of Patent:** Jun. 11, 2002

(54) **IN-HOME PATIENT MONITORING SYSTEM**

(76) Inventors: **Herschel Q. Peddicord**, 22133  
Davidson Rd., Apt. 201, Waukesha, WI  
(US) 53186; **Kent A. Tabor**, 12704 N.  
River Rd., Mequon, WI (US) 53092

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/665,768

(22) Filed: Sep. 20, 2000

**Related U.S. Application Data**

(60) Provisional application No. 60/155,012, filed on Sep. 21,  
1999.

(51) Int. Cl.<sup>7</sup> ..... A61B 5/00; H04B 7/00;  
H04M 1/24; H04M 3/08; H04Q 1/30

(52) U.S. Cl. ..... 600/300; 600/301; 128/897;  
128/903; 128/904; 455/39; 455/507; 455/899;  
379/38; 379/106.02; 340/531; 340/799

(58) Field of Search ..... 600/300-301,  
600/481, 506, 508, 529, 532, 538, 544-545;  
128/878, 897, 900, 903-904, 905; 705/2-3;  
340/531-539, 825, 999; 379/37-38, 106.02;  
455/421, 39, 507, 521, 524, 73-90, 91-92,  
95, 899

(56) **References Cited****U.S. PATENT DOCUMENTS**

4,259,548 A	3/1981	Fahay et al.
4,838,275 A	6/1989	Lee
5,270,770 A	12/1993	Kukimoto et al.
5,339,821 A	8/1994	Fujimoto
5,434,611 A	7/1995	Tamura
5,438,607 A	8/1995	Przygoda et al.
5,441,047 A	8/1995	David et al.
5,454,024 A	9/1995	Lebowitz
5,462,051 A	10/1995	Oka et al.
5,488,412 A	1/1996	Majeti et al.
5,502,726 A	3/1996	Fischer

5,537,459 A 7/1996 Price et al.  
5,544,649 A 8/1996 David et al.  
5,544,661 A 8/1996 Davis et al.

(List continued on next page.)

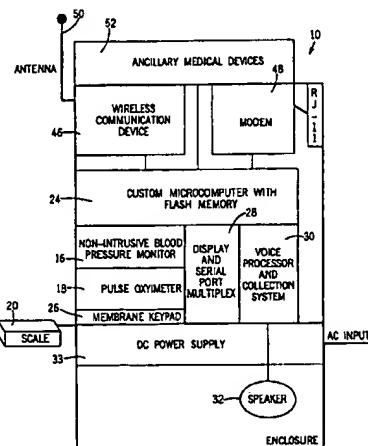
**FOREIGN PATENT DOCUMENTS**

WO WO 98/20439 5/1998

*Primary Examiner*—Kevin Shaver*Assistant Examiner*—Michael Astorino(74) *Attorney, Agent, or Firm*—Andrus, Sceales, Starke & Sawall, LLP(57) **ABSTRACT**

A system for remotely monitoring the medical condition of a number of individual patients from a centralized location. The system includes a plurality of remote monitoring units that each include both a wireless transmission device and a conventional modem for communicating over voice telephone lines. The dual modes of transmission allow the remote monitoring unit to communicate either over a wireless communication network, if available or over conventional telephone wires. The remote monitoring unit includes a voice processing system that provides audio prompts and directions to the patient to direct the patient through the vital sign data gathering sequence. The audio prompts instruct the patient on the particular steps and timing for the vital sign data gathering sequence. Once the vital sign data has been acquired, the control unit of the remote monitoring unit determines whether a wireless transmission network is available. Based on the availability of the wireless communication network, the control unit of the remote monitoring unit selects either a wireless transmission or a conventional modem transmission method for the vital sign data. The vital sign data is compiled in a main data collection station that stores and displays the vital sign data for each patient being monitored. The vital sign data contained within the main data collection station is accessible by multiple workstations through conventional web-based communication techniques.

21 Claims, 8 Drawing Sheets





US005307263A

## United States Patent [19]

Brown

[11] Patent Number: 5,307,263  
[45] Date of Patent: Apr. 26, 1994[54] MODULAR MICROPROCESSOR-BASED  
HEALTH MONITORING SYSTEM5,134,391 7/1992 Okada ..... 340/799  
5,182,707 1/1993 Cooper et al. ..... 364/413.11

[75] Inventor: Stephen J. Brown, Palo Alto, Calif.

Primary Examiner—Roy N. Envall, Jr.

[73] Assignee: Raya Systems, Inc., Mountain View,  
Calif.

Assistant Examiner—Stephen R. Tkacs

Attorney, Agent, or Firm—Christensen, O'Connor,  
Johnson & Kindness

[21] Appl. No.: 977,323

## [57] ABSTRACT

[22] Filed: Nov. 17, 1992

A modular self-care health monitoring system which employs a small handheld microprocessor-based unit (12) such as a compact video game system of the type that includes a display screen (28), switches for controlling device operation (30,32,34,36,38) and a program cartridge (41,42,43) that is inserted into the handheld unit to adapt it for operation with a microprocessor-based healthcare data management unit (10) and a glucose monitor (16) (or, another type of health monitor 30,32). A modem (46), included in the microprocessor-based data management unit (10), allows data such as blood glucose level to be transmitted to a clearinghouse (54), which transmits reports to a remotely located healthcare professional (60) via facsimile transmission (55). The system is intended for use by persons of all ages, but primarily is directed to children afflicted with diabetes or other chronic ailments.

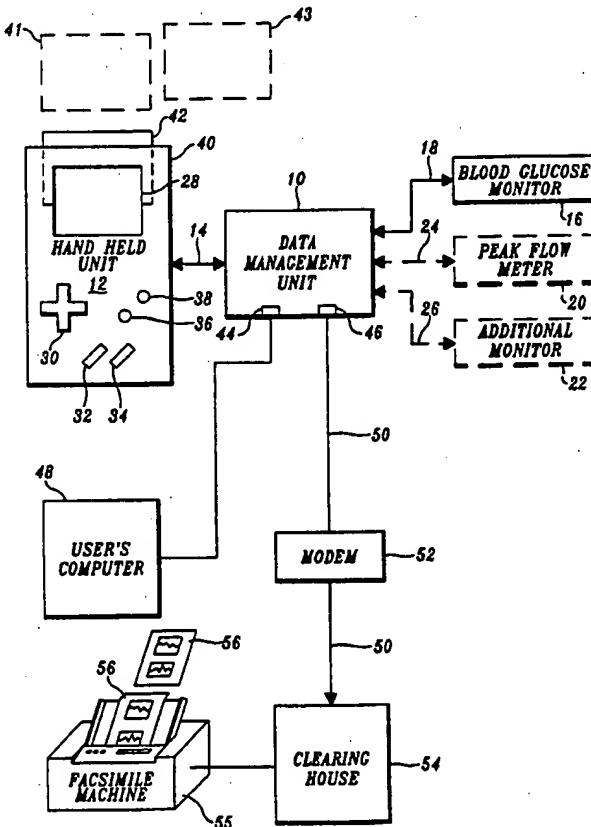
[51] Int. Cl. 5 ..... G06F 15/00  
[52] U.S. Cl. ..... 364/413.09; 364/413.02;  
364/413.11  
[58] Field of Search ..... 364/413.02, 413.03,  
364/413.07, 709.09, 413.09, 413.11; 379/90,  
100, 106

12 Claims, 5 Drawing Sheets

## [56] References Cited

## U.S. PATENT DOCUMENTS

4,546,436 10/1985 Schneider et al. ..... 364/413.02  
4,803,625 2/1989 Fu et al. ..... 364/413.03  
4,897,869 1/1990 Takahashi ..... 379/100  
5,007,429 4/1991 Treatch et al. ..... 128/677  
5,019,974 5/1991 Beckers ..... 364/413.02  
5,025,374 6/1991 Roizen et al. ..... 364/413.02  
5,068,536 11/1991 Rosenthal ..... 250/341  
5,077,476 12/1991 Rosenthal ..... 250/341  
5,095,798 3/1992 Okada et al. ..... 84/609





US006248065B1

(12) **United States Patent**  
Brown

(10) **Patent No.:** US 6,248,065 B1  
(45) **Date of Patent:** \*Jun. 19, 2001

(54) **MONITORING SYSTEM FOR REMOTELY  
QUERYING INDIVIDUALS**

(75) Inventor: Stephen J. Brown, Woodside, CA (US)

(73) Assignee: Health Hero Network, Inc., Mountain  
View, CA (US)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-  
claimer.

(21) Appl. No.: 09/233,499

(22) Filed: Jan. 19, 1999

**Related U.S. Application Data**

(62) Division of application No. 08/847,009, filed on Apr. 30,  
1997, now Pat. No. 5,897,493.

(51) Int. Cl.<sup>7</sup> ..... A61B 5/02; G06F 15/00

(52) U.S. Cl. ..... 600/300

(58) Field of Search ..... 600/300; 128/904,  
128/905, 920-925, 897-898; 705/2, 3

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,128,752 7/1992 Von Kohorn  
5,329,459 7/1994 Kaufman et al.  
5,390,238 2/1995 Kirk et al.  
5,434,611 7/1995 Tamura  
5,441,047 8/1995 David et al.  
5,997,476 \* 12/1999 Brown ..... 600/300

**FOREIGN PATENT DOCUMENTS**

0251520 6/1987 (EP).  
0370599 7/1989 (EP).

9509386 4/1995 (WO).  
9520199 7/1995 (WO).  
9708605 3/1997 (WO).  
9712544 4/1997 (WO).

**OTHER PUBLICATIONS**

Giuffrida, A., Should we pay the patient? Review of financial incentives to enhance patient Compliance, Biomedical Journal, vol. 315, pp. 703-707, Sep. 1997.

\* cited by examiner

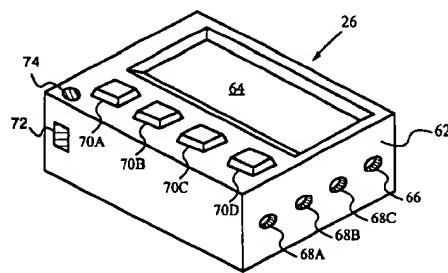
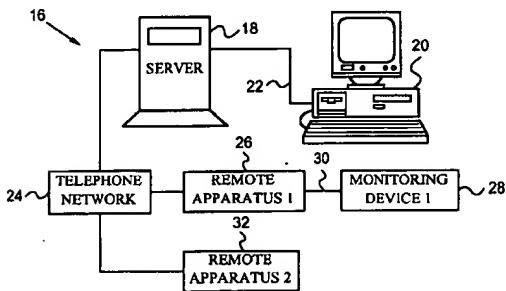
*Primary Examiner*—Samuel G. Gilbert

(74) *Attorney, Agent, or Firm*—Black Lowe & Graham  
PLLC

(57) **ABSTRACT**

A monitoring system for remotely querying an individual includes a central computer system and at least one remote apparatus. The central computer system includes a server and a workstation networked to the server for entering a set of queries to be answered by the individual. The server includes a script generator for generating a script program to be executed by the apparatus. The script program includes display commands to display the queries, input commands to receive responses to the queries, and a transmit command to transmit the responses from the apparatus to the central computer system. The server also includes a database for storing the script program and the responses to the queries. The apparatus includes a modem for receiving the script program from the server and for transmitting the responses to the server. The apparatus also includes a display for displaying the queries and input buttons for entering the responses to the queries. A processor is connected to the modem, the display, and the input buttons. The processor executes the script program to display the queries, receive the responses, and transmit the responses to the central computer system.

11 Claims, 12 Drawing Sheets





US005553609A

**United States Patent** [19]  
**Chen et al.**

[11] **Patent Number:** **5,553,609**  
[45] **Date of Patent:** **Sep. 10, 1996**

[54] **INTELLIGENT REMOTE VISUAL MONITORING SYSTEM FOR HOME HEALTH CARE SERVICE**

5,301,105 4/1994 Cummings, Jr. .  
5,319,363 6/1994 Welch et al. .... 340/825.36  
5,412,708 5/1995 Katz ..... 348/14  
5,416,695 5/1995 Stutman et al. .... 364/413.02

[75] **Inventors:** Yaobin Chen; Thomas G. Mintun, both of Indianapolis, Ind.

[73] **Assignees:** Visiting Nurse Service, Inc., Indianapolis; Indiana University Foundation, Bloomington, both of Ind.

[21] **Appl. No.:** 386,015

[22] **Filed:** **Feb. 9, 1995**

[51] **Int. Cl.:** **A61B 5/02**

[52] **U.S. Cl.:** **128/630; 128/670; 128/904**

[58] **Field of Search:** **128/630, 670, 128/904, 633, 677, 683; 348/6, 13, 14, 16, 148**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

4,831,438	5/1989	Bellman, Jr. et al.	358/108
4,838,275	6/1989	Lee	128/670
4,843,377	6/1989	Fuller et al.	
4,962,473	10/1990	Crain	
4,965,819	10/1990	Kannes	
5,036,852	8/1991	Leishmann	128/630
5,086,385	2/1992	Launey et al.	
5,144,661	9/1992	Shamosh et al.	
5,192,999	3/1993	Craczyk et al.	
5,202,759	4/1993	Laycock	
5,291,399	3/1994	Chaco	

**Primary Examiner—Angela D. Sykes**

**Assistant Examiner—Stephen Huang**

**Attorney, Agent, or Firm—Woodard, Emhardt, Naughton, Moriarty & McNett**

[57] **ABSTRACT**

A computer-based remote visual monitoring system is provided for in-home patient health care from a remote location via ordinary telephone lines. The system includes a supervisory control center having access to patient and health care professional databases for assigning patients to appropriate health care professionals and for performing task planning. A number of master monitoring computers are linked to the control center and are accessible by a corresponding number of health care professionals. A slave monitoring computer is located within the homes of a plurality of patients and may be linked via telephone modems to any of the master monitoring computers. Audio/visual equipment at both locations permits real-time two-way communications during an "in-home" visit to a patient by a health care professional from a remote location. The health care professional has control over the audio/visual equipment in the patient's home as well as the communication of multimedia data via the master monitoring computer, and may automatically generate and maintain the patient's multimedia medical records.

**51 Claims, 20 Drawing Sheets**

